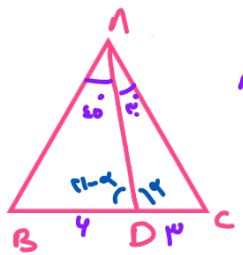


12, a

$$\frac{\tan^p + 1^p}{\cos^p} = \sec^p \Rightarrow \frac{1}{\cos^p} = \sec^p \Rightarrow \cos = \frac{1}{\sec^p} \Rightarrow AB = \frac{1}{\cos^p} - 1$$

$$\frac{AC}{\sin \alpha} =$$



$$ADC \rightarrow \frac{\sin \alpha}{AC} = \frac{\sin \frac{\alpha}{4}}{DC} \rightarrow AC = 4 \sin \alpha$$

$$ABD \rightarrow \frac{\sin(\alpha - \frac{\alpha}{4})}{AB} = \frac{\sin \frac{\alpha}{4}}{4} \rightarrow AB = 4r \sin \alpha$$

$$\frac{AB}{AC} = \frac{4r \sin \alpha}{4 \sin \alpha} = r$$

پاسی منہ

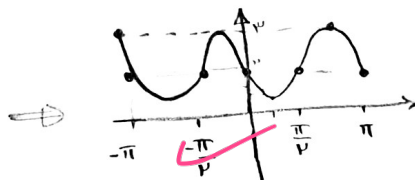
$$S_{ABC} = \frac{1}{2} \times AC \times AB \times \sin \theta \Rightarrow \frac{1}{2} \times \log_p^{\theta} \times \log_p^{\theta} \times \frac{1}{2} \Rightarrow \frac{\theta}{2} = \theta$$

$$\frac{p \cos^p \alpha - \cos^p \alpha - \sin^p \alpha (\sin^p \alpha - \cos^p \alpha)}{\cos^p \alpha (\cos^p \alpha - \sin^p \alpha) - \cos^p \alpha (\sin^p \alpha - \cos^p \alpha)} \Rightarrow -(\sin^p \alpha - \cos^p \alpha) (\sin^p \alpha + \cos^p \alpha) = 1$$

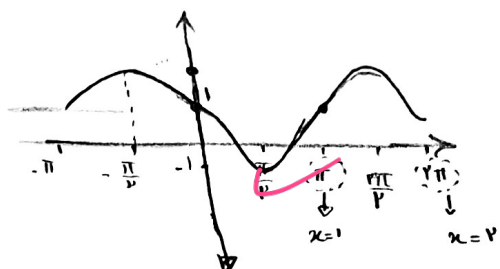
$$\Rightarrow \cos^p \alpha = 1$$

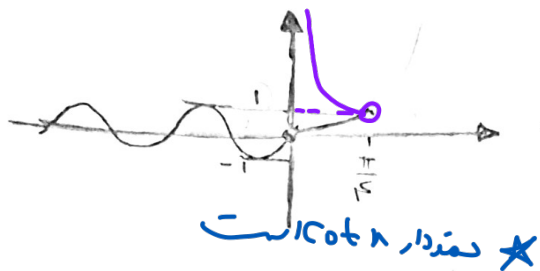
$$\Rightarrow \sin^p \alpha = 0$$

الف) $y = -\sin^p \alpha + 1 \Rightarrow T = \frac{2\pi}{\pi} = 2$



ب) $p \cos(\pi x + \frac{\pi}{p}) + 1 \Rightarrow y = -p \sin(x\pi) + 1 \Rightarrow T = \frac{2\pi}{\pi} = 2$





$$R_f = [-1, 1]$$

$$R_\phi = [-1, +\infty)$$

1.20 (V)

$$f(x) = a + \frac{b}{r} \sin(rx) \cos(sx) \rightarrow a + \frac{b}{r} \sin(rsx)$$

$$\Rightarrow T = \frac{\pi}{r} - \frac{\pi}{r_0} = \frac{5\pi}{10} \Rightarrow \frac{r\pi}{|rc|} = \frac{5\pi}{10} \Rightarrow C = \pm \frac{10}{\lambda} \xrightarrow{C>0} \boxed{C = + \frac{a}{r}}$$

$$\Rightarrow a + \frac{b}{r} = r$$

$$\Rightarrow a - \frac{b}{r} = 0 \Rightarrow \boxed{a = 1}, \boxed{b = 1} \Rightarrow \frac{10}{r} = \boxed{a}$$

$$C + a = r$$

$$C - a = -r \Rightarrow C = -1, |a| = r \Rightarrow \boxed{a = -r}$$

$$T = \frac{4\pi}{|b|} = \pi \Rightarrow |b| = r \Rightarrow \boxed{b = r}$$

$$-r \cos(r\alpha) - 1 = 0 \Rightarrow \cos(r\alpha) = -\frac{1}{r} \Rightarrow |\sin \alpha| = \frac{r\sqrt{r}}{r}$$

$$\Rightarrow |\tan \alpha| \Rightarrow \left| \frac{\frac{r\sqrt{r}}{r}}{-\frac{1}{r}} \right| = \boxed{r\sqrt{r}}$$

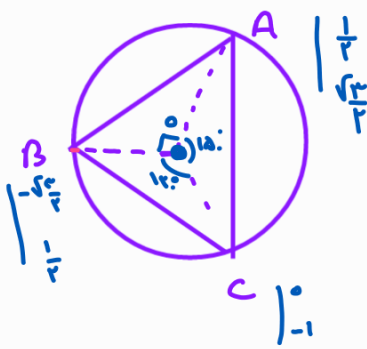
$$f(r \times 11\omega + 0) \Rightarrow \boxed{f(0) = 1}$$

1.20 (10)

$$f(-r\epsilon, \omega) = f(-r\epsilon + 1, \omega) = f(r(1-r) + 1, \omega) = f(r, \omega)$$

$$f(x) = \begin{cases} -\frac{1}{r}x + 1 & ; -\epsilon \leq x \leq r \\ rx + r & ; -1 \leq x < -\epsilon \end{cases}$$

$$\rightarrow f(r, \omega) = -\frac{1}{r}\left(\frac{r}{r}\right) + 1 = \frac{1}{r}$$



$$S_{AOC} = 1 \times 1 \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$$

$$S_{OAB} = 1 \times 1 \times \frac{1}{2} = \frac{1}{2}$$

$$S_{OBC} = 1 \times 1 \times \frac{1}{2} \times \frac{\sqrt{2}}{2} = \frac{\sqrt{2}}{4}$$

$$S_{ABC} = \frac{1}{4} + \frac{1}{2} + \frac{\sqrt{2}}{4} = \frac{1+\sqrt{2}}{2}$$

$$BC^2 = 1^2 + 1^2 - 1 \times 1 \times 2 \times \frac{1}{2} = 1 + 1 - 1 = 1 \rightarrow BC = 1$$

$$AC^2 = 1^2 + 1^2 - 1 \times 1 \times 2 \times \frac{\sqrt{2}}{2} = 1 + 1 - \sqrt{2} \rightarrow AC = \sqrt{2-\sqrt{2}}$$

$$AB^2 = 1^2 + 1^2 \rightarrow AB = \sqrt{2}$$

$$P_{ABC} = \sqrt{2} + \sqrt{2} + \sqrt{2-\sqrt{2}}$$

$$BT = \tan\left(\frac{\pi}{4} - \alpha\right) = \cot \alpha$$

OA, OT شعاع‌های دایره هستند

و طول آنها یک است.

$$OB^2 = OT^2 + BT^2 \rightarrow OB^2 = 1^2 + \cot^2 \alpha \rightarrow OB^2 = 1 + \cot^2 \alpha$$

$$OB^2 = \frac{1}{\sin^2 \alpha} \rightarrow OB = \frac{1}{|\sin \alpha|} \xrightarrow{\text{با توجه به } \alpha} OB = \frac{1}{\sin \alpha}$$

$$AB + 1 = \frac{1}{\sin \alpha} \rightarrow AB = \frac{1}{\sin \alpha} - 1 = \frac{1 - \sin \alpha}{\sin \alpha}$$

سوال ۱